

# Flexibility, Endurability, and Peace

TAOYAKA Newsletter

Vol. 6 Winter 2016



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TAOYAKA



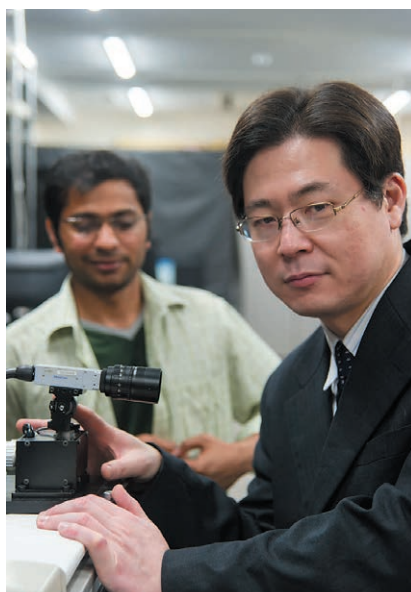
After the final presentation at Onsite Training in Nijo Kominkan, Shimane, August 2016

## Message from Academic Mentor

### *Sensing World*

*Dr. Ishii: Professor and Academic Mentor  
Technical Creation Course Leader*

TAOYAKA program is an enterprising multidisciplinary 5-year PhD education program in which various administrators and innovators from different cultural, technical, and social academic fields work together to develop innovative human resources who are capable of meeting the demands of the onsite fields in the disadvantaged regions of Japan and other developing countries. It has been three years since the TAOYAKA Program was launched in 2014, and I sincerely appreciate the multidisciplinary students who are part of our onsite-domain



Dr. Idaku Ishii  
Technical Creation Course

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education program in cooperation with our academic and professional mentors.

Inspired by the innovative onsite education system in the TAOYAKA program that aims to develop culture-oriented human resources, Hiroshima University has promoted onsite multidisciplinary integrated research. The research focuses on sensing technology, such as high-speed vision that is faster than human vision, and its social im-plementation based on the key phrase ‘Sensing World’. The HiSENS Research Center was established in 2015 as a cutting-edge Center of Excellence (COE) at Hiroshima University. It is evidently different from the conventional technology-based laboratory research that is prone to Galapagosization. The rest of this article describes the concept and prospects of the HiSENS Center.

### [Concept of the HiSENS Center]

The HiSENS Center consists of three units that expand on their respective research areas: advanced sensing, technology and policy management, and international society implementation. In addition, based on the central theme of Sensing World, this Center aims to (1) introduce an interdisciplinary laboratory system to promote joint research among various disciplines, (2) establish an international cooperative laboratory to conduct international onsite joint research, including the development of sensing technology and its social implementation, and (3) provide a HiSENS-integrated education that includes multiple disciplines within the TAOYAKA program. The objective of these

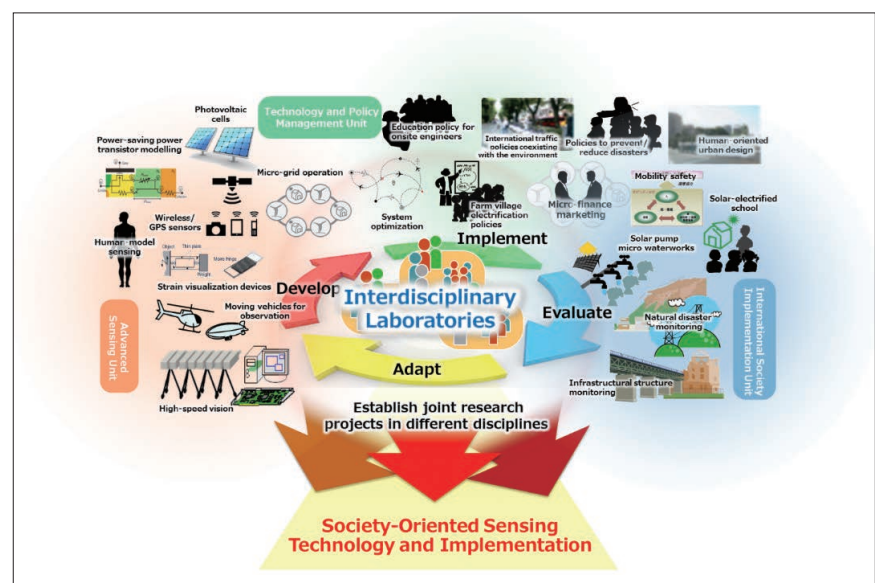
initiatives is to develop a social sensing technology and implementation center that is unique to Hiroshima University. In addition, the program aspires to promote global development along with the advancement in technology and field demand.

### [Importance Expansion Prospects of the HiSENS Center]

The HiSENS Center is significant since it aims to become a comprehensive research and education center with the intent to evolve advanced sensing technology and im-plementation on the sites. The goal is to promote sensing research with proven results, such as the world’s fastest robot eyes. The research will be conducted in cooperation with research groups that focus on social implementation and have gained significant experience in international cooperative projects. This approach has been preferred over the method of conducting isolated advanced research in the laboratory. This approach allows the HiSENS Center to conduct expansion prospects that differ

from the conventional advanced scientific research that is prone to Galapagosization.

Most sensing research centers focus on their respective disciplines, including sensing, robots, and semiconductors. Conversely, the HiSENS Center is unique in its aims to become a sensing research center that is focused on onsite and adaptive problem solving research with the aim to evolve technology. This evolution will result from an equal cooperation between the sensing research group and international social implementation. Several social innovation centers, such as the D-Lab at MIT that designs products on low-cost technology, aim to increase the quality of life in developing countries. In contrast, the HiSENS Center is innovative since it aims to evolve advanced sensing technology on the sites, and it is a research center whose technological domain differs from that of conventional social innovation centers.



Schematic view of the HiSENS



## Welcome to TAOYAKA Program!

### Opening Ceremony: October, 2016

The sixth opening ceremony of TAOYAKA Program was held on October 3, 2016. The members and students of the Program warmly welcomed a new student from Turkey. Including this student, a total of 47 students are part of the program. The students are from 15 countries with various academic and professional backgrounds.

During the ceremony, the Program Director of TAOYAKA Program, Makoto Miyatani (Executive and

Vice President of Hiroshima University), gave the opening address to congratulate and motivate the new student, 'From now, during the 5 years, I expect you to study hard in order to be a global leader and work globally'.

Along with the senior students, the new student is expected to become a global leader who will

design and implement 'onsite reverse innovation' to solve issues with the aim to actualize a multicultural society.

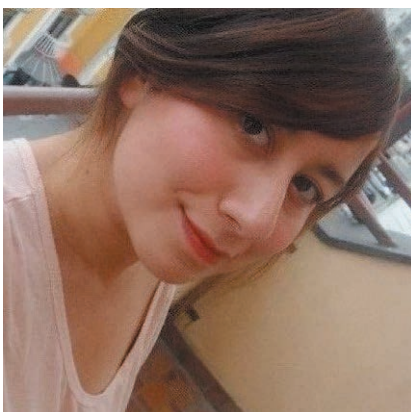


## Introduction of New Student

### Social Implementation Course

**Pinar Temocin** (M1: Graduate School for International Development and Cooperation, Program in Development Science)

*From: Turkey*



My name is Pinar and I am from Turkey. My academic background began in engineering and philosophy in Turkey and Germany. After completing my university degree, I decided to pursue a career in peacekeeping and humanitarian

relief, and I have had internships on politics and international relations at various institutes in Ankara, St Petersburg, and Prague. My interest and enthusiasm for numerous fields increased my awareness of some compelling political situations, and, based on that, I chose to study European Studies in Germany, which was followed by a year of Comparative Politics and Public Policy in France. I wrote my master's thesis on anti-nuclear activism against the first nuclear power plant in Turkey.

My research project focuses on the efficiency of civil society

organizations regarding conflict resolution and prevention issues. Generally, I am interested in citizen organizations' capacities, grassroots peace activists, independent activists, and hibakushas (the surviving victims of the 1945 bombings of Hiroshima and Nagasaki) to work effectively for peace. Therefore, I want to initially focus on Hiroshima's peace-seeking efforts through prominent NGOs, anti-war institutes, local establishments, regional groups, and so on. In my doctoral studies, I want to expand the scope of my research and focus more on the local people and the non-violent activities of grassroots organizations by assessing the

ways that local peace-building organizations have worked on behalf of peace for the Kashmiri dispute and the Israel-Palestine conflict (as case studies). I want to investigate the interactions between peace and its promoters by learning the dynamics and structure of the 'peace' perception while seeking a better understanding of their performances, political awareness, and constructive dialogues. The project aims to focus on facilitating communication and the

contributions made through the empowerment of local communities and the new generation of peace-builders.

I love being involved in public speaking on environmental philosophy and ecology-related issues, such as nuclear energy, climate change, and the ecological crisis. I have spent a significant amount of time in the past focusing on expanding my skill set and on debating. My ultimate goal is to

analyse complex global issues. After Taoyaka, I plan to enter post-doctoral work at a peace research institute together with education on political cinema. I want to continue with a long-term career as an academic conducting research on social integration projects in disadvantaged regions. I consider myself a researcher with diverse experiences in multiple regions around the world.

## Onsite Education

# Onsite Course Rotation: Spring 2016

*The first stage of the onsite education which consists of six classes including a one-day onsite visit*

## 1. Regional Innovation Based on the Sixth Industry: Fukutomi-town, Higashi-Hiroshima

April 15~June 3, 2016

By **Nao Ishikawa**

*Special-Appointment Associate Professor, Graduate School of Letters*

### 1. Summary

The theme for this onsite visit was 'Regional Innovation based on sixth industry'. Sixth industry refers to the combination of primary, secondary, and tertiary sectors of industry. In some cases, large companies in Japan monopolize the second and third industries. In the recent times, the first industry, such as agriculture, has become a supplier or subcontractor of materials for the second and third industries. The sixth industry aims for the economic independence of first industry by adding value to agricultural products.



The basic objective of the Cultural Creation Course is to understand the region based on its characteristics, such as the daily life of the locals, industry, and history. To achieve this goal, first

we provided students the opportunity to visit the area, interview the local people, and identify the regional structure and challenges.





Listening to the interview at the Farm Cadore

Our target area was Fukutomi town in Higashi-Hiroshima city. We visited three facilities: Farm Cadore, Fukutomi Dam and Roadside station, and Shakunage store. The sixth industry can be divided into two types: (1) Business-oriented type aims to increase competitiveness and promote employment. (2) Community-oriented type aims to increase collaboration among farmers and improve the life and social ties in the community.

## 2. Visited Facilities

### (1) Uenohara Farm Cadore

Uenohara Farm Cadore is based on the business-oriented type of industry. Their base industry is dairy farming. We interviewed Mrs. Ueda who is the Chief Director of Cadore and the wife of Cadore's president.

We learned the history of the company and its development as the sixth industry. Mr. Ueda's parents started dairy farming in the 1970s in Fukutomi. Mr. Ueda joined the farming business in



Interviewing Mrs. Ueda, Chief Director of the Farm Cadore

1987. For him, the first 10 years were a period of trial and error. He was concerned with improving this business. There were two options: to increase the number of cows or to add value to the farm products. Mr. Ueda chose to shift to the sixth industry by processing dairy products. Currently, Mr. and Mrs. Ueda run multiple operations. They manage a gelato shop, restaurant, cheese factory, and café.

### (2) Fukutomi Dam and Roadside station

The roadside station has two main functions: (1) as a rest-stop facility on general roads and (2) for local development. The roadside station originated in Hiroshima prefecture. A private group, which was considering ways to develop regions, proposed the idea of a roadside station in 1990, and then the Japanese government adopted it. Therefore, it is a good example of bottom-up development.



Fukutomi Dam

The Fukutomi dam was constructed in 2009 and it greatly influenced the development of Fukutomi town, especially when 90 ha of the land submerged and 41 households had to migrate for the construction of the dam. A new community was built near the dam for the resettlement of residents. One of these facilities is 'Roadside station Fukutomi'. It is one of the biggest roadside stations in Hiroshima prefecture. The facility is an economic hub because, besides a



In front of the Shakunage Store

parking area, it has a farmers' market, playground, auditorium, and camping site. The sales profit is around 200 million yen per year.

### (3) Shakunage store of Fukutomi products

The store is an example of the community-oriented type of industry. It was built by the Fukutomi town office in 2002.

The store is managed by a group of nine local farmers. They process and sell their agricultural products at the store. They have a farmers' market, a shop selling homemade processed food, and a restaurant. According to Mr. Mizuwaki, the director of the Shakunage store, the store positively affected them and added to their source of income. First, the facility is a place for communication among the locals and visitors. Second, it provides employment to many female farmers. While working, they exchange information and share ideas. The store motivates them. They work enthusiastically and this attracts more customers to the store.



Interviewing Mr. Mizuwaki, Director of the Shakunage store





Technical Creation Course



Cultural Creation Course



Social Implementation Course

### 3. Activities

After onsite visits, the students conducted a series of activities. They were divided based on their courses, had discussions, and made presentations. There were two tasks that involved group work. The first task was to make two models of regional innovation through the sixth industry based on two actual cases, such as the Farm Cadore and Shakunage store. The second one was to propose a

general model to facilitate regional innovation through the sixth industry in disadvantaged areas in Japan.

On the day of presentation, three groups presented. Each group successfully described their unique model from the perspective of their course. They inspired each other and understood the importance of multidisciplinary cooperation to make effective contribution for the regions.



Group Photo at the Farm Cadore

## 2. Smart Village Park Design with Solar Power: Kodani, Higashi-Hiroshima

June 6~July 29, 2016

By **Sonoko Watanabe**

*Special-Appointment Lecturer, Graduate School for International Development and Cooperation*



Photo2: The Kodani Community Photovoltaic Power Station

### Background

The second module of onsite course rotation in AY2016 was conducted on the theme of 'Kodani smart village park design with community photovoltaic power station' from June 6 to July 29, 2016. The purpose of this course was to develop the students' practical knowledge and onsite learning. In addition, the course aimed to promote an understanding of the current onsite scenario and train students to develop the ability

to analyse the problem structure using the problem-solving approach through discussions with students from diverse backgrounds.

Kodani is located in the eastern part of Higashi-Hiroshima with a population of approximately 4,500 people. The major facilities are the Shiraichi JR station, Kodani Service Area of Sanyo Expressway, and Ohsora housing complex. Over 80 percent of Kodani residents live in this housing complex, which was constructed in the 1970s.

The Kodani community is working to improve the overall attraction of the towns and develop the local resources, such as renewable energy.

### *Taoyaka Open Seminar*

On June 6, three keynote lectures were delivered by Mr. Tateo Kaguri, (Director of Organization for Kodani Community Development), Mr. Yoshiyuki Date (Manager of Engineering Department, Energia Solution & Service Co.), and Prof. Naoto Yorino (Graduate School of Engineering, Hiroshima University). First, Mr. Kaguri presented the community history of Kodani area and the issues faced by the local community.

In the next lecture, Mr. Date described the various innovative approaches in the technology and the management of solar photovoltaics. Finally, Prof. Yorino showed the development of a new energy system that was suited for a

smart village park design. In addition, he mentioned the trend of research on smart village and clean energies and the innovative progress of solar power generation. Through these lectures, students understood regional development from three perspectives: community, company, and research.

Moreover, they recognized the need to address the challenge of a region while maintaining active communities and appropriate technology development.

### *Onsite Visit*

On July 1, seventeen students of Taoyaka participated in an onsite visit to the Fukuyama and Kodani areas. During the morning session, they visited the Fukuyama Next-Generation Energy Park, where visitors can experience next-generation energy (Photo 1).



Photo1: The Fukuyama Next-Generation Energy Park

The main purpose of this visit was to observe the Fukuyama Photovoltaic Power Station and the Fukuyama recycle plaza and understand the characteristics of a large-scale solar power generation system and technology that uses re-generable energy efficiently. In the

afternoon session, they moved to the planned construction site of the Kodani Community Photovoltaic Power Station and were instructed about the development of clean energy and smart communities for efficient energy use in the region (Photo 2). The power station is located near the Kodani Service Area and the energy produced will be supplied to the Service Area in the future. Through the effort and cooperation of Toshiba Co., Taoyaka students were able to experience the assembly process of the photovoltaic power generation module during their onsite visit. (Photo 3).

### *Discussion*

After the onsite visit, students are divided by their course, social implementation, cultural creation, or technical implementation. They worked in groups to prepare for the presentations.

On July 15, the teams from each course presented their suggestion of the smart village design with solar power that is harmonized with the culture and nature in Kodani. They exchanged various views and ideas.



Photo3: Experience of the solar panel installation



# Onsite Training: Summer 2016

*The second stage of the onsite education involving a short stay in Japan and one of the following countries: India, Bangladesh, and Nepal.*

## Training in Japan

### Village-Hub Development in Nijo, Shimane

August 17~21, 2016

By **Makoto Chikaraishi**,

*Special-Appointment Associate Professor, Graduate School for International Development and Cooperation*



Together with Dr. Ko Fujiyama (Shimane Mountainous Region Research Center) and his colleagues, TAOYAKA program organized a training program titled 'Village-Hub Development in Japan' in Nijo, Shimane in August 2016.

There are growing concerns about sustaining and revitalizing under-populated communities and villages in Japan, which have diminishing and aging population. Around one-third of the communities have a population of less than 50 people (the Syuraku (集落) level), and the elderly (aged 65 years and above) form more than 50% of the population in about one-sixth of the communities. If this trend continues, it will become increasingly difficult to provide services within an accessible location.

To resolve this issue, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) implemented Village-Hub Development (VHD). The main idea of VHD is to relocate the facilities and functions that are essential to daily living (such as stores, medical clinics, and centres of regional activities) to the village-hub that is accessible from neighbouring villages. The VHD is based on a bottom-up approach, rather than a top-down approach, by supporting community initiatives in various sectors including transportation.

In this training program, we focused on the possible ways of implementing a successful VHD in Nijo. To successfully implement a VHD, first, the residents' needs and resource constraints need to be understood. Next, different services must be systematically coordinated

and combined. A typical example is to combine freight and passenger transports and, thereby, reduce the cost of the drivers. Consequently, the combined transport would provide a sustained daily bus service. Finally, the idea needs to be shared with the local people. Considering these aspects, the program was designed to attain the following:

- 1) Develop skills to interview the locals about the difficulties they face in daily life and their hopes for the future.
- 2) Understand the impacts of the Village-Hub Development in Nijo.
- 3) Consider the challenges of providing efficient service in a diminishing and aging population of a community or village.
- 4) Develop communication using the visualizing approach to help the locals understand the proposed solutions.
- 5) Develop the skills required to manage a small research project.

For group tasks, the students formed groups of four or five



Village walk in Nijo



members. Each group designed the hub and services to gain cross-sector benefits through the VHD.

The detailed structure of the training program is as follows:

**DAY 1 (August 17): Half-day tour of the Nijo District**

Understand the present situation of the area and to share the positive features and problems of Nijo.

**DAY 2 (August 18): On-site study at the community (Syuraku)**

Visit the community and interview several households to understand the benefits and the problems of living in the area (There are five communities in Nijo: Kurosu, Katsuragahira, Kashihara, Kamikurodani, and Asaka).

**DAY 3 (August 19): Design a 'Village-Hub' and transport network**

Design a Village-Hub and transport network (both intra- and inter-district transport) based on the possibilities and constraints of the Nijo District and the community.

**DAY 4 (August 20): Create a Village-Hub and transport network**

Create a Village-Hub and transport network both inside and outside the community using Lego blocks. This will help to visualise the real operation.

**DAY 5 (August 21): Deliver the presentations and share the findings and proposals**

Deliver presentations on the five days of fieldwork and share them together, including with the local people

On the final day, the five groups presented their proposals.

The first group proposed a comprehensive village hub called 'NIJYO-Hotal Kyoten'. The hub included a playground, internet centre, event hall, sports centre, restaurant and bar, morning market, gas station, remote assistance, and medical centre. These functions are well organized in the small hub. The key challenge is to attract enough visitors to maintain this kind of a comprehensive hub.



The developed village hub (Group 1)

The concept of the second group's proposal is 'Repurposed', which aims to reinvent purpose in community life rather than proposing drastic revitalization measures. The proposal includes three hubs: (1) community and information centre, (2) restaurant, grocery, and farmers' market, and (3) Seinan junior high school. The key challenge lies in securing human resources to sustain the three hubs.

The third group proposed 'Hotaru Hub'. It involves three key concepts: connected, old and new, and green. In addition, the group

proposed a new transport network that would provide better access to Masuda city. Their proposal was quite concrete (a website was developed), and won the vote of the local residents!

The forth group's hub concept is 'Hidden treasure of Nijo'. It included a unique idea of using wild animals that destroy crops: Instead of killing the animals, keep those animals in a designated zoo located in the hub. The proposed hub utilizes existing facilities, including vacant houses; however, it could require extensive human resources.

The fifth group focused on the connection between the village hub and the least populated Syuraku (集落), Asaka. Instead of developing a comprehensive hub in the central area of Nijo, the group proposed to put a small hub in Asaka by considering feasibility and convenience, which makes the proposal realistic.

Overall, with the help of Nijo local residents, the training program was successful in improving our understanding of the situation in rural Japan. Moreover, we realised that it is important to work closely with local people to develop a feasible plan.



Presenting and sharing findings and proposals with Nijo local residents

## Internship at Toshiba India Private Limited (TIPL): Gurgaon, India

August 17~September 16, 2016

By **Hiroshi Zenitani**

*D1, Graduate school of Engineering, Department of System Cybernetics,  
Technical Creation Course*



Myself: at the front of the Chhattisgarh State Renewable Energy Development Agency (CREDA)

In India, Renewable Energy (RE), including solar power, has become popular thanks to aggressive introductory activities based on the Indian government's policy. Solar Home Systems (SHS) contributes to lighting the lives of people who live in remote or mountainous areas that have no or weak power grids.

The purpose of this internship is to observe the actual situations of SHS and understand people's real needs. To accomplish this purpose, TIPL gave me the opportunity to visit the following places.

### *1) Retail Market in the Old Delhi area*

There are many and various shops in the Old Delhi area, which is the Lajpat Rai market. I visited some solar products' shops that sell solar panels, solar lanterns, and so on. Almost all of their panels appeared to be used items from China or India; therefore, the prices were very low and there were no warranties.

### *2) Solar Panels and SHS Vendors*

I visited four companies that handle Solar Home Systems: Moser Baer Solar, RBP Renewable Energy Solutions, ICON Solar, and KAHO. Their explanations helped me to understand SHS functions, detailed costs of SHS, and the warranty service system. I also visited an solar panel factory of ICON solar to observe its assemble line.



Solar Home Systems Kit

### *3) Chhattisgarh Renewable Energy Development Agency (CREDA)*

CREDA works very well to connect SHS integrators with villagers. Every village has some support from CREDA or similar companies as mediators or educators. I learned that collaboration between private companies and the government is very important for disseminating SHS.

### *4) Renewable Energy India (REI) 2016 at the India Expo*

The tenth REI was held on 7 through 9 September, 2016. Many

Indian and Chinese companies promoted their solar panels. The prices of solar panels made in India and China were very competitive. However, developed countries in Europe, the US, and Japan used the pavilion to introduce their power operation technologies and energy solutions.



TOSHIBA Booth at REI 2016

Through these observations, I learned the following things.

- Trends of RE in India that are differ from Japan
- People's preferences and decision-making on RE in India
- Business models for spreading SHS to non-electric areas

This internship also inspired me to consider the ways that new solar PV technology competes with conventional PV.

I am grateful to the TIPL staff. Without their guidance and persistent help, my training would not have been possible. I hope to make excellent use of these experiences in my research and on the Onsite Team Project.



# Internship at Gunma University: Kiryu, Japan and CSIR-Central Electronics Engineering Research Institute (CSIR-CEERI): Pilani, India

February 15~20, 2016 & March 18~April 2, 2016

By **Michiaki Inoue**

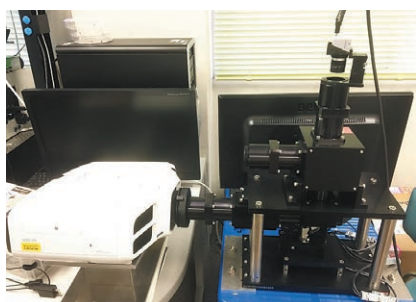
*M2, Graduate school of Engineering, Department of System Cybernetics,  
Technical Creation Course*



Making a presentation on this internship experience at Hiroshima University, October 2016

Everywhere in daily life, we see the blur caused by motion. Rapid movements when a camera's shutter is open causes motion blur. It is used to create effects in movies and photographs. However, particularly in the case of inspections of product lines, vision sensors are influenced by motion blur when we request accurate images of objects without stopping the objects' movements.

My study proposes a motion-blur-free camera system. This system is consisted of a high-speed vision and high-speed mirror actuator. The system algorithm alternates between the camera shutter open and closed depending on the state of the actuator's timing, which are a mirror-tracking control and back-to-home control, respectively.



Saccade Mirror

Thus, my proposed camera system can capture clear images even when an object is moving at high speed. I observed the system's efficacy through offline experiments; my next steps are to obtain real-time feedback.

To achieve my goals, advanced understanding is necessary in two areas. The first area concerns optical design. Because I will be designing optical parameters, such as mirror size and lens focal length, I will need deep knowledge of optics. Second, image processing, particularly edge detection, is required. Edge detection involves calculating the extent of luminance gradient. I will use that as the motion-blur evaluation. However, this method takes a long time to process. Therefore, I will accelerate the image processing by implementing on the Field-Programmable Gate Array (FPGA) circuit. This internship would deepen my understanding of optics and FPGA design gained at each host institution.

While I was at Gunma University, I acquired basic knowledge and design skills regarding optical parameters with the Pupil Shift lens of the Saccade Mirror. The Pupil Shift lens is designed for high-speed vision using a wide-angle lens. I improved my understanding of optical design, such as the view of angles and F-values.

In CSIR-CEERI, Pilani, I learned FPGA circuit design though IDP-Express in CSIR-CEERI. In the robotics laboratory at Hiroshima University, the IDP-Express board was designed for high-speed video processing and recording. In this system, the image processing algorithms were implemented by hardware logic on the FPGA.



CSIR-CEERI, Pilani



Guest House in CSIR-CEERI, Pilani

Moreover, I had valuable discussions about FPGA circuit design with FPGA design professionals.

Last, I am grateful to Gunma University and CSIR-CEERI, Pilani, for providing me with an advanced understanding of optical design and FPGA through this internship. I also thank Associate Professor Oku, Dr Solomon, and the staff for their ample and helpful advice.

# Special Summer Program 2016

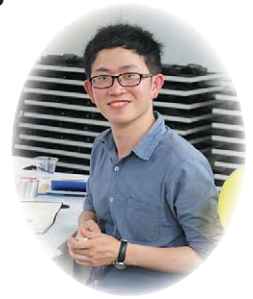
## Leadership Training Program at the University of Texas

July 11~22, 2016

*The University of Texas at Austin's Lyndon B. Johnson (LBJ) School of Public Affairs, invited TAOYAKA students to participate in their summer program, "Public Management and Leadership Program." One of the successful scholarship recipient shares his learning experience.*

By **Bing He**

*D1, Graduate School for International Development and Cooperation,  
Program in Development Sciences, Social Implementation Course*



It was a valuable opportunity to attend the 2016 Public Management and Leadership Program (July 11 to 22, 2016) organized by the Lyndon B. Johnson (LBJ) School of Public Affairs, University of Texas at Austin. The topics in the summer course were very helpful to students studying in leadership programs, such as the TAOYAKA Program.



The Lyndon B. Johnson School of Public Affairs

The two weeks of intense coursework at the LBJ School included many topics about leadership and management, but I want to focus on several of the most unforgettable topics.

The first topic was finding own personal strength. It is easy to notice other people's strength, but sometimes it can be difficult to recognize and precisely describe one's personal strengths. Through this course, I discovered that I have the following five strengths: I am a maximizer, have empathy, am an achiever, have intellection, and I have connectedness. Knowing our strengths helps our teamwork and helps group leaders to manage the teams to guarantee that the

teamwork is highly efficient.

The second topic was persuasive communication skills. We know that whether ideas are accepted can highly depend on the people who express and how they express those ideas. To be a good leader, excellent communication skills are necessary because you must convince others to believe and follow you. To make people believe and accept our opinions, being friendly and articulate regarding influential messages are important and helpful qualities.

The third topic was negotiation skills. As a group leader at a company or in the government, an important and necessary skill is negotiating skill. Using games requiring negotiation in the course, I discovered that trust between the parties is necessary and that persuasive communication works after trust is developed. Then, the competing companies both reap profits. Negotiation is a necessary skill for leaders in rapidly developing societies with fierce competition.

Although two weeks at the LBJ School was a short period, but the things that I learned there will



A game used for negotiating skills



Classroom Activities

benefit me in future studies and work. I believe that persuasive communication skills are the skills that I will prefer to practice most in my future studies and work because they will not only help me to describe my work and express my opinion, they will help me to become a team leader.

I am very thankful to the faculty members of the TAOYAKA Program for selecting me to attend this valuable educational opportunity with the generous amount of financial support. I also am grateful to Ms. Grossman and her partners at the LBJ School for their kind support while I was in Austin. As well, I appreciate all TAOYAKA administrative staff, specifically Ms. Hiroishi and Ms. Fukuoka for their help in my preparations for travel to the US.



At the Graduation Ceremony



# Award Recipient Interview

## Three Minutes Competition for Future Doctors 2016 At Higashi Hiroshima Arts & Culture Hall, Organized by HIRAKU:

Home for Innovative Researchers and Academic Knowledge Users, Hiroshima University  
September 24, 2016

The **Global Challenge Award**, one of the three major awards at the Competition was presented to **Mattana Tunchai**, TAOYAKA Program. Congratulations!!

Award recipient: **Mattana Tunchai**  
D3, Graduate School of Advanced Sciences of Matter,  
Department of Molecular Biotechnology, Technical Creation Course



Awards recipients

**Q. Please introduce yourself including your study focus and goal.**

**A.** My name is Mattana Tunchai, and I am from Thailand. I came to Japan four years ago for the master's course in the Global Environmental Leaders Education Program at Hiroshima University.

After receiving master degree, I transferred to the TAOYAKA doctoral program. My major area of study is molecular biotechnology focusing on chemical-sensing systems of bacteria. My research goal is to develop a novel method to stop bacterial infection by disturbing their sensing systems.

**Q. Summarize your speech and what you would like the audience to learn from your speech.**

**A.** I aimed to explain the goal of my research so that the audience would understand the usefulness of

the developed control method. I began my speech by explaining the background of bacterial sensing systems and how bacteria find plant-roots.

Then, I described the idea for stopping bacterial infections by artificially adding the signal compounds into the soil, which might lure the bacteria to other places and blind the actual signal released by the root.

After that, my research, in which malic acid is successfully used to control bacterial wilt infection, was presented. Because malic acid is a food additive, I emphasized safety and the economic perspective on malic acid as a promising control agent.

I concluded my speech by explaining the benefits expected to be derived after my control method is successfully implemented. For example, the uses of antibiotics or toxic chemicals as disinfectants could be reduced and agricultural

production could be increased.



Performing 3 minutes speech

**Q. Is this your first time participating in this type of competition? Why did you decide to participate in this contest?**

**A.** I have presented my research to a non-specialist audiences many times, yet this is my first time participating in a three-minute thesis competition.

Originally, this is not my intention to participate in this competition. When I first heard about it, I thought that it would be impossible for me to fit my research into a three-minute presentation, so

I did not apply for it. Instead, my supervisor, Kato-sensei, had applied for me. When I learned my participation from the HIRAKU, Hiroshima University, I was hesitant to do but I thought that if my advisor believes I can do it, I should be able to do it. That was why I decided to participate in this contest!

**Q. How long did you practice? If you have any tips for preparing for this type of competition, please share them with us.**

**A.** I finished the first draft of my script about two weeks before the event. I kept revising and improving it until the last day before the competition to finalize for rehearsal. I rehearsed all that day. I have three tips to share with you.

First, know your audience and prepare your speech to fit the audience's background. Since most of the audience were non-specialists and high school students. So, I used half of my speech for introduction and used examples that are easy to follow.

Second, rehearse with non-specialists. In doctoral research, we focus deeply on our disciplines. We can forget that the words we use are not common words.

Third, learn from other performances. There are many videos of three-minute thesis performances on the Internet. Watch and learn from them. There are many interesting tricks the presenters use to attract listeners' attention that you can adapt to your speech.

**Q. Tell us about the hardest and easiest parts.**

**A.** The most difficult part was preparing the script to be clearly understood and fit the people in the audience, be compelling, and yet

maintain scientific accuracy. As I mentioned, I spent quite a long time preparing the first draft of my script and kept revising it for two weeks.

Regarding the easiest part, compared to the usual academic presentation, it might be that there is no Q & A sessions. However, that means script preparation for a three-minute thesis is more difficult because you have to clearly explain everything in three minutes without leaving any questions unanswered.

**Q. Would you like to participate in this type of competition again? Would you recommend it to your friends for next year's competition?**

**A.** Because I learned many things and had a good experience in this competition, I certainly would participate in this type of competition again. I also encouraged my colleagues to participate in next year's competition. By attending this contest, you will gain the skills to present your work to wide audiences in a limited timeframe, which will surely be useful in the future. Moreover, you will surprisingly learn more about your own research.

**Q. Please freely share your overall feedback on your participation in the competition.**

**A.** This is the first time that all the people who I talked with after my speech fully understood what I was trying to tell them. Their comments made me very happy because they seemed to be satisfied with my speech. It also feels great to know that they are interested in my research. All comments are useful for me to improve my performance at the next competition.

**Q. What is your goal for next year's competition in Australia?**

**A.** When I intentionally participate in a competition, I always aim to win. The Asia-Pacific three-minute thesis competition is certainly challenging because the winner or representative from each Australian and Asian university will compete in this contest. Fortunately, I have had almost one year to prepare, so I believe that I will do my best in the Asia-Pacific three-minute thesis competition in 2017.



After the award ceremony

**Q. Any additional comments?**

**A.** First, I sincerely thank Professor Junichi Kato, my advisor, who pushed me to participate in this competition. Without his action, I would never have attended the competition. I also am grateful to my friends and to Saijo Toast master's club, for valuable suggestions on improving my script.

Last, I thank the organizing staff members who kindly supported me throughout the competition.

*Mattana Tunchai's speech at the Three Minutes Competition for Future Doctors 2016 can be retrieved from the HIRAKU's website at:*

*[http://home.hiroshima-u.ac.jp/hiraku/en/event/competition\\_2016\\_en/report](http://home.hiroshima-u.ac.jp/hiraku/en/event/competition_2016_en/report)*



Receiving Global Challenge Award Certificate



# International Workshop

## RURAL-URBAN SYMBIOSIS at Hiroshima University

August 7, 2016

*The purpose of the Workshop is for doctoral candidates to demonstrate their doctoral thesis progress and receive assessments, advice, and opinions from the attendees that they could use to further their research.*

The first International Workshop entitled 'RURAL-URBAN SYMBIOSIS' was held on 7 August 2016 at Hiroshima University. The doctoral candidates independently planned the content, and they invited three lecturers who were familiar with their research, conducted the public relations activities, and hosted the Workshop.

### Session1: Keynote Lectures

Guest Speakers	Titles
<b>Dr. Masayuki Moriyama</b> (President, Vital LEAD Co.LTD)	Current and Future Measures to Maintain Rural Communities
<b>Mr. Victorino Aquitania</b> (Regional Director, ICLEI, Local Governments for Sustainability Southeast Asia Secretariat)	City - Region: Sustainable Urbanization in Southeast Asia
<b>Dr. Kazuhiro Mochidzuki</b> (Project Associate Professor, Institute of Industrial Science, University of Tokyo)	Sustainable Biomass Utilization System for Local Community

### Session2: Students' Presentations

Student Speakers	Titles
<b>Nattacha Paksung</b> D3, Technical Creation Course	Study of a xylose decomposition under sub- and supercritical water
<b>Mattana Tunchai</b> D3, Technical Creation Course	Chemotaxis of <i>Ralstonia solanacearum</i> as a target to control bacterial wilt disease
<b>David Perez Barbosa</b> D3, Social Implementation Course	Transport-based social exclusion and its implications for urban policy
<b>Andhang Rakhmat Trihamdani</b> D3, Social Implementation Course	Urban Heat Island in the growing cities in a hot and humid climate of Asia and its mitigation



From the left, Mattana, Andhang, Dr. Moriyama, Mr. Aquitania, Dr. Mochidzuki, David, and Nattacha

### Student's Voice: By **Andhang Rakhmat Trihamdani**, one of student presenters

The International Workshop was an opportunity for students to share their research with diverse audience. What is interesting about this Workshop is that we, as a group of students, played a major part in the planning and organizing of the event.



Our first task was to determine the main theme of the Workshop. Because the Workshop aimed for deep discussion on a particular topic, the main theme was an important way to narrow down the discussion. We ultimately chose 'Rural-Urban Symbiosis' as the theme. A discussion on urban-rural connections to create sustainable regions was expected to emerge during the Workshop.

We expected the invited speakers to offer their insights on the topic from their perspectives. Accordingly, we needed to decide who would be the most appropriate speakers for the Workshop. We were given two very helpful options. The first option was to choose from the list of professional mentors in the TAOYAKA Program, and the second option was to choose based on our interests. So, students in the Program who had interesting persons in mind, needed to be prepared to contact them in advance!

Overall, the Workshop was very fruitful. The speakers offered useful insights related to the topic, and they provided constructive feedback on our on-going research.

In addition, we did our best to satisfactorily present our research to the audience. We greatly appreciate everyone who participated in this event.

Last, I am looking forward to attending the next International Workshop! I hope it will be another big success for the next group of students!



## Upcoming Events

- Onsite Education: India (March2017), Nepal (March2017)
- The International Symposium
- TAOYAKA Seminars (please check our website and Facebook for details)

## Admission Information

Admissions for October 2017 and April 2018 (both general and transfer into the third year admissions) will be open soon in spring 2017. Please check our website for details!

## Contact Us

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### ***Flexibility, Endurability, and Peace***

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TAOYAKA Program for creating a flexible, enduring,  
peaceful society, Hiroshima University

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